



# Empowering Children in MRI: Using Virtual Reality to Build Comfort and Avoid Anesthesia

# No Disclosures

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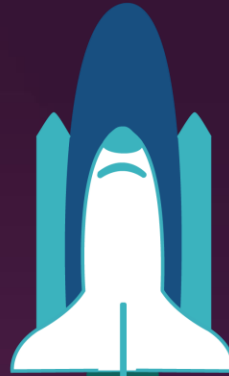
# BACKGROUND



MRI can be very challenging for our youngest patients



General Anesthesia (GA) is often required for patients under 6



Anesthesia is a costly, limited resource that has risks and side effects



The wait time for MRI under GA for non-emergency patients at our Canadian institution peaked at 550 days



## GENERAL ANESTHESIA

# OUR SOLUTION? THE MR SUCCESS CLINIC!

## INNOVATION: VIRTUAL REALITY (VR)

- Preparation tool for various pediatric procedures
- Reduces anxiety
- Improves compliance

## PROOF OF CONCEPT: PILOT STUDY

- 18 patients, mean age 4.5 yrs, 100% success rate

## IMPLEMENTATION: MR SUCCESS CLINIC

- Empower children through VR simulation
- Experience the sight, sound and feeling of an MRI

# METHODS

## Inclusion and Exclusion Criteria:

- Inclusion: Children ages 3-7 years old, referred for a non-contrast head MRI under GA
- Exclusion Criteria: Developmental delay, vision and/or hearing impairments

## Personalized MRI education and explanation session for patients and families

- This appointment is guided by a pediatric MRI Technologist

## MRI simulation with virtual reality

- Short game as an icebreaker and introduction to VR
- Avatar guided MRI scan to show example
- MRI simulation utilizing real scanner sounds
- Real-time graphed feedback for head motion which can be viewed by family and MRI Technologist to guide instruction and objectively demonstrate ability to hold still for MRI.

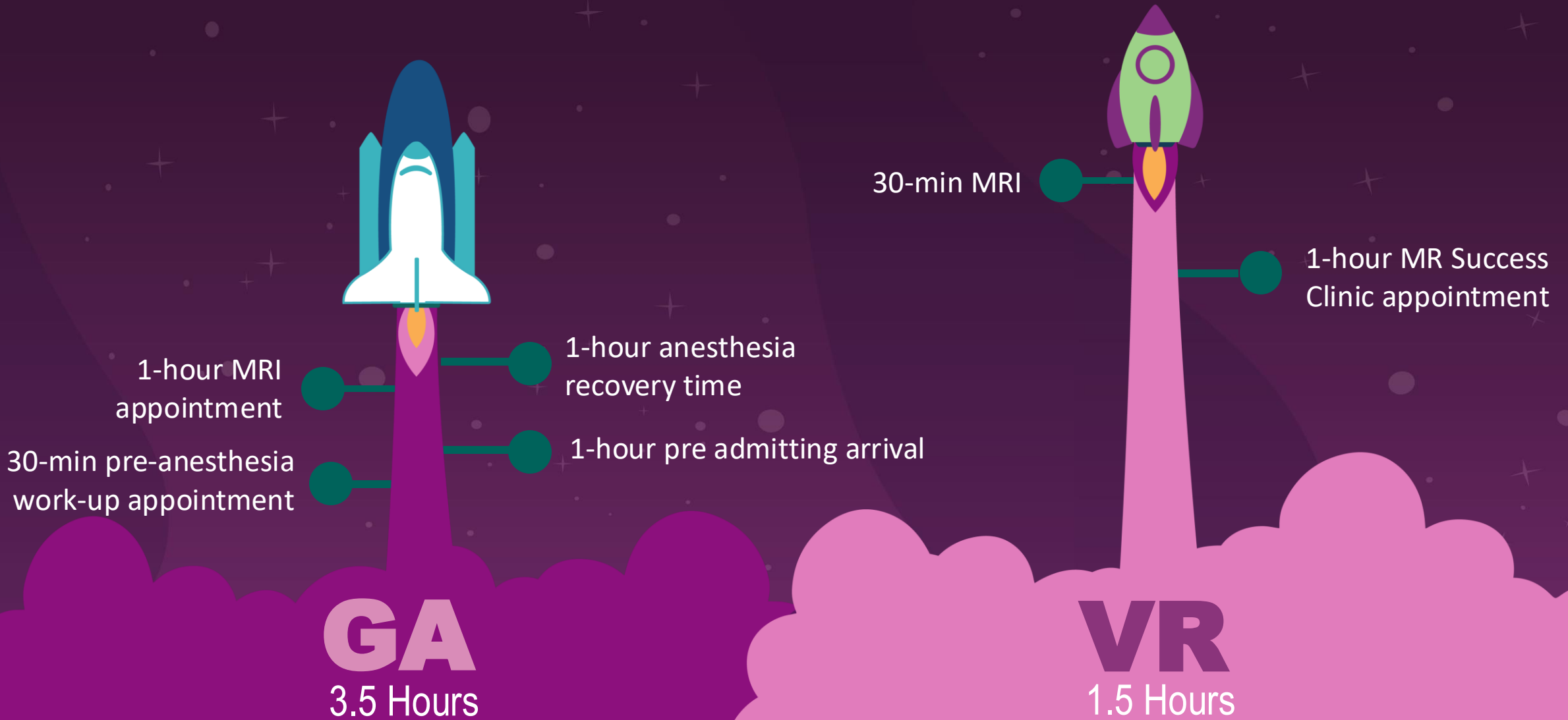
## MRI exam within 1 week of MR Success Clinic appointment

# MR SUCCESS CLINIC



**VIRTUAL REALITY**

# NON-CONTRAST HEAD MRI



# RESULTS

Total: 33 MR Success Clinic patients

- 30/33 completed MRI without GA
- 30 GA hours saved
- 60 nursing hours saved
- 90 patient hours saved
- 50% reduction in MRI appointment time for successful patients



# VISION FOR SUCCESS



## Current Target

- Ages 4+
- Non-contrast Head MRI
- On the current waitlist for a GA MRI to reduce overall wait times

## Future Goals

- Oncology – Support transition from GA to non-GA
- Patients with anxiety
- All imaging modalities
- Patients of all ages who would benefit

# Thank you



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